



SLOVENSKI STANDARD
oSIST prHD 60364-1:2023
01-september-2023

Nizkonapetostne električne inštalacije - 1. del: Temeljna načela, ocena splošnih karakteristik, definicije

Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions

Errichten von Niederspannungsanlagen - Teil 1: Allgemeine Grundsätze, Bestimmungen allgemeiner Merkmale, Begriffe

Installations électriques à basse tension - Partie 1: Principes fondamentaux, détermination des caractéristiques générales, définitions

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oSIST prHD 60364-1:2023

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SECRETARIAT: Germany	SECRETARY: Mr Wolfgang Niedenzu
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 8, SC 8B, TC 20, TC 22, SC 22H, TC 23, SC 23B, SC 23E, SC 23H, SC 23K, TC 32, SC 32B, TC 34, SC 37A, TC 61, TC 69, TC 82, TC 85, TC 95, TC 99, TC 120, TC 121, SC 121A, SC 121B, PC 128, SyC LVDC	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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TITLE:

Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions

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NOTE FROM TC/SC OFFICERS:

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1	CONTENTS		
2	FOREWORD.....		7
3	INTRODUCTION.....		9
4	1.1 Scope		10
5	1.2 Normative references.....		12
6	1.3 Terms and definitions.....		12
7	1.3.1		13
8	1.4 Structure of the IEC 60364 series		13
9	1.5 Fundamental principles		13
10	1.5.1 Protection for safety		13
11	1.5.1.1 General.....		13
12	1.5.1.2 Protection against electric shock.....		14
13	1.5.1.2.1 Basic protection		14
14	1.5.1.2.2 Fault protection.....		14
15	1.5.1.2.3 Additional protection		14
16	1.5.1.3 Protection against thermal effects		14
17	1.5.1.4 Protection against overcurrent		15
18	1.5.1.5 Protection against fault current		15
19	1.5.1.6 Protection against voltage disturbances		15
20	1.5.1.7 Protection against power supply interruptions		15
21	1.5.1.8 Protection against the effects of electromagnetic		
22	interference.....		15
23	1.5.2 Design.....		15
24	1.5.2.1 General.....		15
25	1.5.2.2 Power Supplies		16
26	1.5.2.2.1 Characteristics of power supplies.....		16
27	1.5.2.2.2 Electric supply systems for safety services and		
28	standby electric supply systems.....		16
29	1.5.2.3 Nature of demand		17
30	1.5.2.4 Environmental conditions		17
31	1.5.2.5 Cross-sectional area of conductors		17
32	1.5.2.6 Type of wiring and methods of installation.....		18
33	1.5.2.7 Protective equipment		18
34	1.5.2.8 Emergency switching off		18
35	1.5.2.9 Isolation.....		18
36	1.5.2.10 Functional switching.....		18
37	1.5.2.11 Prevention of mutual detrimental influence.....		18
38	1.5.2.12 Accessibility of electrical equipment		19
39	1.5.2.13 Additions and alterations to an installation		19
40	1.5.2.14 Electrical energy efficiency		19
41	1.5.2.15 Local production and storage of electrical energy		
42	(prosumer)		19
43	1.5.2.16 Communication means.....		19
44	1.5.2.17 Documentation for the electrical installation		19
45	1.5.2.18 Division of installation		19
46	1.5.2.19 Signs and notices		20
47	1.5.3 Selection of electrical equipment		20
48	1.5.3.1 General.....		20
49	1.5.3.2 Characteristics.....		20

50		1.5.3.2.1	General	20
51		1.5.3.2.2	Voltage	20
52		1.5.3.2.3	Current	20
53		1.5.3.2.4	Frequency	20
54		1.5.3.2.5	Power	20
55		1.5.3.3	Environmental conditions	21
56		1.5.3.4	Prevention of harmful effects	21
57		1.5.3.5	New materials, inventions and innovations	21
58	1.5.4		Erection and verification of electrical installations	21
59		1.5.4.1	Erection	21
60		1.5.4.2	Initial verification	22
61		1.5.4.3	Periodic verification	22
62	1.6		Assessment of general characteristics	22
63	1.7		Purposes, supplies and structure	22
64	1.7.1		General structure	22
65	1.7.2		Maximum demand and diversity	23
66	1.7.3		Conductor arrangement and low voltage electric systems	23
67		1.7.3.1	General	23
68		1.7.3.2	Live conductors	23
69		1.7.3.2.1	Live conductors in AC circuits	23
70		1.7.3.2.2	Live conductors in DC circuits	24
71		1.7.3.3	Protective conductors	25
72		1.7.3.3.1	General	25
73		1.7.3.3.2	Protective earthing conductors	25
74		1.7.3.3.2.1	General	25
75		1.7.3.3.2.2	PEN conductors	25
76		1.7.3.3.2.3	PEL conductors	25
77		1.7.3.3.2.4	PEM conductors	25
78		1.7.3.3.3	Protective bonding conductors	26
79		1.7.3.3.4	System-referencing-conductors	26
80		1.7.3.4	Types of electric systems	26
81		1.7.3.4.1	General	26
82		1.7.3.4.2	Types of electric systems for AC	28
83		1.7.3.4.2.1	TN-systems	28
84	1.7.3.4.2.1.1		General	28
85	1.7.3.4.2.1.2		System with a single source	29
86	1.7.3.4.2.1.3		System with more than one source	30
87		1.7.3.4.2.2	TT system	33
88	1.7.3.4.2.2.1		General	33
89	1.7.3.4.2.2.2		System with single source	33
90	1.7.3.4.2.2.3		System with more than one source	34
91		1.7.3.4.2.3	IT system	39
92	1.7.3.4.2.3.1		General	39
93	1.7.3.4.2.3.2		System with more than one source	40
94		1.7.3.4.3	Types of electric systems for DC	40
95		1.7.3.4.3.1	General	40
96		1.7.3.4.3.2	TN systems	40
97		1.7.3.4.3.3	TT-system	43

98		1.7.3.4.3.4 IT-system.....	45
99	1.8	Compatibility	46
100	1.8.1	Compatibility of characteristics	46
101	1.8.2	Electromagnetic compatibility	47
102	1.9	Maintainability	47
103	1.10	Safety services	47
104	1.11	Continuity of service	48
105	■	(informative) Plan of IEC 60364 series	49
106	A.1	49	
107		Bibliography.....	51
108			
109		Figure 1 – Single-phase 2-wire	23
110		Figure 2 – Two-phase 3-wire.....	23
111		Figure 3 – Three-phase 3-wire	24
112		Figure 4 – Three-phase 4-wire	24
113		Figure 5 – 2-wire.....	24
114		Figure 6 – 3-wire.....	25
115		Figure 7 – Example of an AC TN-S system with separate neutral conductor and protective earthing conductor throughout the system	29
116			
117		Figure 8 – Example of an AC TN-C-S system with a PEN conductor separated into a protective earthing conductor and a neutral conductor	30
118			
119		Figure 9 – Example of an AC TN-C-S system with a PEN conductor separated into a protective earthing conductor and a mid-point conductor	30
120			
121		Figure 10 – Example of an AC TN-S multiple source system with two local sources	32
122		Figure 11 – Example of an AC TN-C-S multiple source system with one local source and one external source (e.g., public power supply network)	33
123			
124		Figure 12 – Example of an AC TT system	34
125		Figure 13 – Example of an AC TT multiple source system with two local sources.....	35
126		Figure 14 – Example of an external source in an AC TT supply system with a local source in an installation operating as an IT installation when disconnected from the external source	37
127			
128			
129		Figure 15 – Example of an external source in an AC TT supply system with a local source in an installation operating as a TT installation when disconnected from the external source	38
130			
131			
132		Figure 16 – Example of an external source in an AC TT supply system with a local source in an installation operating as an TN installation when disconnected from the external source	39
133			
134			
135		Figure 17 – Example of an AC IT system with exposed-conductive-parts earthed individually or in groups by protective earthing conductors.....	40
136			
137		Figure 18 – Example of a DC TN-S system without mid-point.....	40
138		Figure 19 – Example of a DC TN-S system with mid-point	41
139		Figure 20 – Example of a DC TN-C system without mid-point	41
140		Figure 21 – Example of a DC TN-C-S system with mid-point.....	42
141		Figure 22 – Example of a DC TN-C-S system without mid-point	42
142		Figure 23 – Example of a DC TN-C-S system with mid-point.....	43
143		Figure 24 – Example of a DC TT system without mid-point	44
144		Figure 25 – Example of a DC TT system with mid-point	44

145	Figure 26 – Example of a DC IT system without mid-point.....	45
146	Figure 27 – Example of a DC IT system with mid-point	46
147		
148	Table 1 – Types of electric systems considered for AC installations	27
149	Table 2 – Types of electric systems considered for DC installations.....	27
150	Table 3 – Symbols indicating the conductor function	28
151	Table 4 – Numbering system of IEC 60364 series	49
152	Table 5 – Plan of IEC 60364 series: Low-voltage electrical installations.....	49
153		
154		

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE ELECTRICAL INSTALLATIONS

159

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Part 1: Fundamental principles, assessment of
general characteristics, definitions

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FOREWORD

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1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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IEC 60364-1 has been prepared by subcommittee **TC64 MT1: Terms and definitions**, of IEC technical committee TC64: **Electrical installations and protection against electric shock**.

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199

This document addresses fundamental principles, assessment of general characteristics and definitions.

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201

This sixth edition cancels and replaces the fifth edition published in 2005. This edition constitutes a technical revision.

202

203

This edition includes the following significant technical changes with respect to the previous edition:

204

205

a) **The entire Part 1 has been restructured and numbered with reference to current editions of various parts of the IEC 60364 standard;**

206

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b) **The scope has been expanded to include new areas of application and has been restructured;**

- 208 c) With subclause 1.5.2.2.2, the topic of safety services and standby electric supply systems
209 has been added;
- 210 d) With subclause 1.5.2.14, the topic of energy efficiency has been included;
- 211 e) With subclause 1.5.2.15, the topic of prosumer electrical installations has been included;
- 212 f) With subclause 1.5.3.5 an equivalent safety level is required for the use of new materials
213 and innovations for which no product standards exist yet. This must be verified by a risk
214 assessment;
- 215 g) With subclause 1.5.4.3 it is required that effectiveness of protective measures for people
216 and livestock safety shall be maintained during the entire lifetime of the installation. This
217 should be done by periodic verification;
- 218 h) Table 3 shows the symbol for the newly introduced “system-referencing-conductor (SRC)”;
- 219 i) The number of pictures showing the type of earth connection in AC and DC systems is
220 limited to the most important ones. Since the applications for DC installations have
221 increased significantly, some figures for DC Installations have been added

222 The text of this **International Standard** is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

223
224 Full information on the voting for its approval can be found in the report on voting indicated in
225 the above table.

226 The language used for the development of this **International Standard** is **English**.

227 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
228 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
229 at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
230 described in greater detail at www.iec.ch/publications.

231 The committee has decided that the contents of this document will remain unchanged until the
232 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
233 specific document. At this date, the document will be

- 234 • reconfirmed,
- 235 • withdrawn,
- 236 • replaced by a revised edition, or
- 237 • amended.

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239

INTRODUCTION

240 The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed
241 that compliance with this document may involve the use of a patent. IEC takes no position
242 concerning the evidence, validity, and scope of this patent right.

243 The holder of this patent right has assured IEC that s/he is willing to negotiate licences under
244 reasonable and non-discriminatory terms and conditions with applicants throughout the world.
245 In this respect, the statement of the holder of this patent right is registered with IEC. Information
246 may be obtained from the patent database available at patents.iec.ch/.

247 Attention is drawn to the possibility that some of the elements of this document may be the
248 subject of patent rights other than those in the patent database. IEC shall not be held
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LOW-VOLTAGE ELECTRICAL INSTALLATIONS

Part 1: Fundamental principles, assessment of general characteristics, definitions

1.1 Scope

The International Standards of the IEC 60364 series specifies the rules for the design, erection, and verification of low-voltage electrical installations. The rules are provided for the safety of human beings (persons), livestock and property against dangers and damage which may arise from the intended use of low-voltage electrical installations and for the proper functioning of those installations.

Examples: A non-comprehensive list of electrical installations or systems includes:

- residential premises;
- commercial premises;
- public premises;
- industrial premises;
- agricultural and horticultural premises;
- prefabricated buildings;
- caravans, caravan sites and similar sites;
- construction sites, exhibitions, fairs and other installations for temporary purposes;
- marinas;
- external lighting and similar installations;
- medical locations;
- mobile or transportable units;
- photovoltaic systems;
- stationary secondary batteries;
- low-voltage generating sets.

NOTE 1 “Premises” covers the land and all facilities including buildings belonging to it.

The IEC 60364 series covers

- circuits supplied at nominal voltages up to and including 1000 V AC or 1500 V DC; For AC, the preferred frequencies which are taken into account in this standard are 50 Hz and 60 Hz. The use of other frequencies is not excluded.
- circuits, other than the internal wiring of apparatus, operating at voltages exceeding 1000 V AC or 1500 V DC and derived from an installation having a nominal voltage not exceeding 1000 V AC or 1500 V DC, for example, discharge lighting, electrostatic precipitators;
- wiring systems and cables not specifically covered by the standards for appliances;
- fixed wiring for information and communication technology including power supply, signalling, fibre optic, control and the like (excluding internal wiring of apparatus).

293 The IEC 60364 series applies to:

- 294 – alterations and/or extensions of the installation;
- 295 – parts of the existing installation affected by modifications, extensions or alterations;
- 296 – the design of functional aspects, such as energy efficiency, local production and storage
297 of energy (prosuming).

298 The IEC 60364 series applies to any kind of low-voltage electrical installation or system, except:

- 299 j) electric traction equipment, including rolling stock and signalling equipment;
- 300 k) electrical circuits and equipment for automotive purposes within motor vehicles;
- 301 l) electrical installations of ships and of mobile and fixed offshore units;
- 302 m) electrical installations in aircraft;
- 303 n) public street-lighting installations which are part of the public electric power network;
- 304 o) installations in mines and quarries.

305 Electrical equipment is dealt with only in so far as its selection and application in the installation
306 are concerned.

307 The IEC 60364 series does not apply to the selection and erection of the following electrical
308 equipment:

- 309 p) radio interference suppression equipment, except where it affects the safety of the
310 installation;
- 311 q) electric fences;
- 312 r) external lightning protection systems for buildings (LPS);

313 NOTE 2 Atmospheric phenomena are covered in IEC 60364-1 but only in so far as effects on the electrical
314 installations are concerned (for example, with respect to selection of surge protective devices).

- 315 s) electrical equipment of machines.

316 The IEC 60364 series is not intended to apply to low-voltage public distribution networks.

317 NOTE 3 However, countries can use this standard in whole or in part for that purpose.

318 This applies also to assemblies of electrical equipment complying with the relevant standards.

319

320 1.2 Normative references

321 The following documents are referred to in the text in such a way that some or all of their content
322 constitutes requirements of this document. For dated references, only the edition cited applies.
323 For undated references, the latest edition of the referenced document (including any
324 amendments) applies.

325 IEC 60050-195, International Electrotechnical Vocabulary (IEV) – Chapter 195: Earthing and
326 protection against electric shock

327 IEC 60050-826, International Electrotechnical Vocabulary (IEV) – Part 826: Electrical
328 installations

329 IEC 60364-4-41, Low-voltage electrical installations – Part 4-41: Protection for safety –
330 Protection against electric shock

331 IEC 60364-4-42, Low-voltage electrical installations – Part 4-42: Protection for safety –
332 Protection against thermal effects

333 IEC 60364-4-43, Low-voltage electrical installations – Part 4-43: Protection for safety –
334 Protection against overcurrent

335 IEC 60364-4-44, Low-voltage electrical installations – Part 4-44: Protection for safety –
336 Protection against voltage disturbances and electromagnetic disturbances

337 IEC 60364-5-51, Electrical installations of buildings – Part 5-51: Selection and erection of
338 electrical equipment – Common rules

339 IEC 60364-5-52, Low-voltage electrical installations – Part 5-52: Selection and erection of
340 electrical equipment – Wiring systems

341 IEC 60364-5-53, Low-voltage electrical installations – Part 5-53: Devices for protection for
342 safety, isolation, switching, control and monitoring

343 IEC 60364-5-54, Low-voltage electrical installations – Part 5-54: Selection and erection of
344 electrical equipment – Earthing arrangements, protective conductors and protective bonding
345 conductors

346 IEC 60364-5-55, Electrical installations of buildings – Part 5-55: Selection and erection of
347 electrical equipment – Other equipment

348 IEC 60445, Basic and safety principles for man-machine interface, marking and identification –
349 Identification of equipment terminals, conductor terminations and conductors

350 1.3 Terms and definitions

351 For the purposes of this document, the following terms and definitions given in IEC 60050-195,
352 IEC 60050-826 and the following apply.

353 ISO and IEC maintain terminology databases for use in standardization at the following
354 addresses:

- 355 • IEC Electropedia: available at <https://www.electropedia.org/>
- 356 • ISO Online browsing platform: available at <https://www.iso.org/obp>

357

358 **1.3.1**359 **diversity**

360 the prospective simultaneous demand of a group of electrical loads

361 **1.4 Structure of the IEC 60364 series**

362 The IEC 60364 series consists of 6 main parts:

363 IEC 60364-1 “Fundamental principles, assessment of general characteristics, definitions”

364 This document defines the scope and objective for the IEC 60364 standard series and specifies
365 the fundamental safety requirements for an electrical installation.

366 IEC 60364-4 “Protection for safety”

367 These documents specify the functional requirements for protection, taking into account the
368 fundamental safety requirements given in this document.

369 IEC 60364-5 “Selection and erection of equipment”

370 These documents specify requirements for the selection and erection of electrical equipment to
371 fulfil the functional safety requirements of IEC 60364-4 and the fundamental safety
372 requirements given in this document.

373 IEC 60364-6 “Verification”

374 This document specifies the requirements for verification and testing to show compliance with
375 the requirements of the other parts of the IEC 60364 standard series. Requirements for
376 reporting the verifications and testing are also given.

377 IEC 60364-7 “Requirements for special installations or locations”

378 These documents specify specific requirements for special installations or locations. These
379 requirements either modify, replace or complement the requirements of the other parts of the
380 IEC 60364 standard series.

381 IEC 60364-8 “Functional aspects”

382 These documents specify requirements related to functional aspects only. However, these
383 requirements can impact the safety requirements of the other parts of the IEC 60364 standard
384 series.

385 Annex°A gives additional information on the structure.

386 **1.5 Fundamental principles**387 **1.5.1 Protection for safety**388 **1.5.1.1 General**389 The requirements stated in 1.5.1.2 to 1.5.2.7 are intended to provide for the safety of human
390 beings, livestock and property against dangers and damage which can arise from the intended
391 use of an electrical installation, including its connected current using equipment, under all
392 operating conditions. The requirements to provide for the safety of livestock are applicable in
393 locations intended for them.

394 NOTE In electrical installations, hazards that can arise include: